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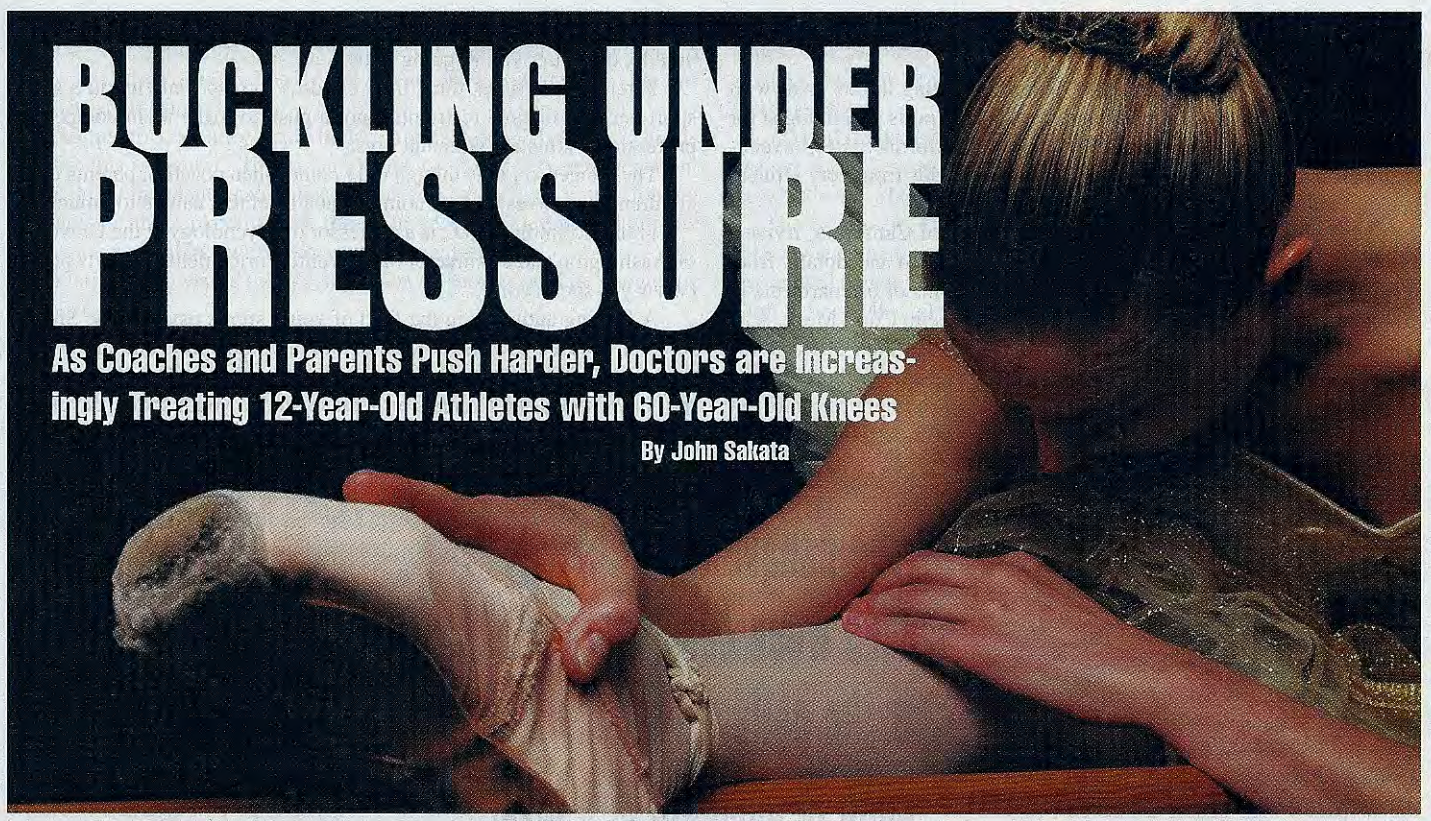

## As Coaches and Parents Push Harder, Doctors are Increasingly Treating 12-Year-Old Athletes with 60-Year-Old Knees

By John Sakata

Bryce Lee, a Seal Beach resident who practices ballet in Laguna Hills, was sprinting his way down a wood floor one day last November when he thrust himself into the air, in preparation to perform a double tour—"that's when you jump in the air and twice spin yourself around tight like a pencil"—when he heard three accompanying "pops" from his body.

The 14-year-old boy, a three year veteran of ballet, promptly crashed to the floor in tears.

"My coach told me to put all my force into this step, to make sure it looked good and perfect," Bryce says. "In the air, I felt one big pop and two minor pops. Right after that, I could not walk on that leg for a couple of hours."

Six months later, Bryce, his mother Marcy, and his two sibling were in the Newport office of Dr. Jack Giangiulio, DC, a specialist in dance injuries. Bryce, who uses a rocking board in Giangiulio's office to establish motor control for his ballet technique, had been rehabbing with Giangiulio for four weeks.

Three years of intensive training using poor footwork, an innocent and common, but highly consequential, mistake, had caught up with Bryce, Giangiulio says.

There is concern in the sports medical community over a mounting body of evidence that points toward more young adults developing osteoarthritis, the degeneration of the cartilage in the knee, at a younger age than previous generations, though there is no conclusive link that says the specialization of youth sports and the professionalization of training will lead to osteoarthritis—only increase the likelihood that this condition will develop.

The specialization of a sport at a young age and rigorous training, or the professionalization of the sport, two common elements found in ballet—not to mention soccer, basketball, gymnastics, volleyball and several other sports—could set children for an uncomfortable situation decades down the road, especially if children like Bryce do not recognize and properly address early injuries.

Marcy has a unique story to tell. All three of her children—Noelle, 9; Tate, 10; and Bryce—aspire to become principal ballet dancers, the top position for a dancer at a ballet company.

Each of her accomplished children, filled with passion and discipline, are on the right path, having started ballet at a young age. Noelle started ballet when she was 2. Tate picked up an interest in the sport after watching his sister perform; he started at 4. Bryce picked up ballet dancing at 11, in part because he started noticing the disproportionate makeup of girls who attend ballet classes.

Their mother has been trying to play catch-up with her children ever since Noelle first started. She had no experience with ballet, being raised in southwest Missouri, far away from any ballet classes. She enrolled her child in classes with no background knowledge on ballet. She has since followed her children's lead and has had to take a disciplined approach to affiliate herself with the sport. She has a handful with three motivated children who practice ballet six days a week for three hours.

"At my old studio they say I work too hard, and too much," Tate says. "I told them 'No. I am going to be good. I am going to work hard and push myself that way I can be better than kids a year older than me.' "

Tate was taking two to three ballet classes a day at one point. His siblings are also individually motivated.

Many ballet dancers start out young, says Giangiulio, who has worked with dancers at the Barclay Theatre and Riverside Ballet. He says he treats patients as young as 3.

Done with the right training and technique and at the proper pace, practicing a single sport at a young age can offer a tremendous amount of benefit to children, experts in sports medicine and sport psychology say. For a small subset of the youth population though, their passion for sports can take them down a potentially self-destructive path.

This group of children—who often play in multiple sports leagues in a single sport several times a day— are wearing out the cartilage in their knees and spine by the time they are in their 20s and 30s because of the constant pounding applied to fragile joints.

Most sports psychologist and sports physicians recognize that a failure to exercise and the development of obesity in children is one of the most worrisome challenges facing children today. Still, there is another group of young adult athletes that put themselves in danger from overengaging in sports.

The specialization in one sport and professionalization of the training for that sport could also be a trend especially attributable with those parents who live in upscale neighborhoods, like those in South Orange

County.

"I've never met an athlete from Santa Ana sitting in this chair with those issues…," says Dr. Lenny Wiersma, DPE, a sports psychologist for USA Swimming and kinesiology professor at California State University, Fullerton. "I've probably met with a hundred kids from very affluent backgrounds who sit in this chair."

Dr. David Kruse, MD, director of University of California, Irvine's Primary Care Sports Medicine, says he has both heard anecdotally from other sports physicians and seen the early symptoms of osteoarthritis in young adult patients that have stopped by his office in Costa Mesa.

"So what I see in my practice are both people in their 30s and 40s with degenerative arthritis that previously we only saw in those 50 and 60 year olds," Kruse says. "It's a little sooner. It just might be minor but they are coming in with knee pain. They will have early degenerative changes, that is early arthritis. It's just because they played sports their whole life, and they played it at an intense level."

Osteoarthritis is especially worrisome because unless appropriately addressed, the pain could haunt these young athletes for the duration of their life, and in extreme cases push some into expensive joint replacement surgery later in life. The early symptoms of osteoarthritis—swelling or pain which causes a change in training habits or soreness or pain that persists for several days—also will not be felt for five to 10 years.

Kruse says his primary concern is that children are "doing too much, too soon, too early, and at a level too intense that is causing wear and tear resulting down the line in that loss of cartilage at an earlier age."

**"The danger to joints only comes when coaches, parents or the children themselves push to compete at a level that can be too much."**

The early signs of osteoarthritis in the knee on a physiological level could include swelling of the cartilage and the bone, Kruse says. There could also be the development of fluid or swelling in the joint.

"We can't regenerate it," says Kruse, referring to cartilage. "It can't grow back. Once it's injured, it's kind of lost. You could think of it as you only have so much, and it will eventually wear away."

In the spine, athletes that are involved with a lot of jumping, twisting, or extension of the spine are prone to develop degenerative changes in the region, Kruse says. Degenerative changes in the spine could include extra bone formations or bony spurs. Instead of cartilage being worn away like in the knee, the degenerative changes in the spine occur in relation to the intervertebral disk. Early symptom of osteoarthritis in the spine could include a thinner or diseased intervertebral disk.

Giangiulio, who has worked with dancers for 16 years, says genetics, a young athlete's injury history, and training are all important components that factor in to whether or not a child who specializes in a single sport and trains at a professional level will develop osteoarthritis.

Giangiulio says he knows many life-long ballet dancers who still move without pain in their later years. He says often times those who have pain suffer because the biomechanics of their technique make them injury prone.

"I see some older dancers that have had their hip re-surfaced because its gotten so bad," Giangiulio says. "I see other dancers that are perfectly normal."

The allure of a full college scholarship, the aspiration of national sports recognition, and the dream of having their child become competitive on a professional level can all prove tantalizing for any parent with a child, says Wiersma, also co-director for the Center for the Advancement of Responsible Youth Sports at California State University, Fullerton.

Wiersma attributes the drive to overtrain as "this belief that the more you do, the better you're going to be."

Parents often times force their children into specializing in a single sport because of time restraints—not a push to make them competitive professional athletes, Wiersma says.

The danger to joints though only come when coaches, parents or the children themselves push to compete at a level that can be too much.

Frank L. Smoll, Ph.D., is a professor of psychology at the University of Washington and co-director of the Youth Enrichment in Sports project (www.y-e-sports.com).

A leading authority in the field of youth sports psychology, Smoll's research focuses on coaching behaviors in youth sports and on the psychological effects of competition on young athletes. Smoll, the co-author of 20 books and manuals on areas related to youth sports, developed a program in collaboration with his colleague Ronald Smith called the "Mastery Approach to Coaching," a coaching-education workshop designed to help maximize a child's youth sports experience.

With 30 years of experience researching the field of youth sports, Smoll says the "the biggest problem in general with youth sports is the lack of understanding between a developmental and a professional model of sports."

Smoll says the developmental model is process oriented—focused on the "educational experience." The professional model is focused on the bottom-line goal of winning.

"We're not saying that winning doesn't matter," Smoll says. "It does, at any level of sports it matters. Sports is competition, an achievement arena. With the Mastery approach, what you are focusing on is what you can control—personal effort, commitment, perseverance. You focus on what you can control… Instead of experiencing pressure, you're experiencing challenges, and how you can cope with those challenges."

Wiersma says he sees the professionalization of training and competing in sports from some of the parents of children he counsels for USA Swimming, a national organization that hosts events and competitions for more than 2,800 clubs across the country. He says he regularly sees children ages 12 to 14 from the upscale parts of Orange County put under extraordinary pressure from their parents to be competitive.

Wiersma says some of the children he counsels in the Orange County area wake up as early as 5:30 a.m. to train for two hours before school. These children then train for two hours after they get out of school. Weekends could include several days of out-of-state competition. Between training and competition, these early teens might see seven days of practice a week.

These children feel like they have no option but to win in the sport they compete in, Wiersma says.

"So (with these children) instead of backing off, and letting their body perform the way it's trained to perform, these children push harder," Wiersma says. "So their body breaks down further—this is typical overtraining syndrome. Then when they go to train under those conditions, of course, they are going to perform even worse. Their only option is to push even harder."

Smoll says he has seen similar cases in studies he has conducted in the affluent Puget Sound area in Washington. The upscale area is home to a population of parents who are accustomed to a life of meeting high standards and expect their children to measure up. The Reverse Dependency Trap is "when parent becomes dependent on the child for a sense of self esteem and that leads to over-identification and greater pressure on the child," Smoll says.

Smoll, over the course of two years, has worked with a video production team to develop a DVD, "A Mastery Approach to Parenting in Sports," to teach parents how to act around their children who are engaged in youth sports.

"All parents identify with their children," Smoll says. "This is healthy; this is natural. This is part of the love bond between the parent and child. If the identification becomes excessive—it's no longer Johnny or Mary out there playing—but the child becomes an extension of the parents own ego that's when it becomes dangerous."

Wiersma also warns the specialization of sports could be dangerous for other reasons.

Maturing children will often times use sports to form their own identity, Wiersma says. Children who grow up and practice a single sport will identify themselves with the sport. After many years of playing a single sport, these children will develop friendships with their teammates. The problems occurs when these children become injured, or fail to make the team at a higher level—these children could lose a part of their identity.

Several weeks ago, Margaret Howell, 21, a senior at UCI was in New York to attend several dance classes. Her goal is to one day be a regular on Broadway. She had been dancing for 10 years.

During the trip, Howell tripped and injured her piriformis in her lower back area, an injury diagnosed by Giangiulio. Since the injury, Howell has limited dancing and is taking her job as a dancer at Disneyland on the High School Musical parade more lightly.

"I've had several moments where I say, 'If I can't dance, what am I supposed to do?'" Howell says. "That's why I am reaching out, taking all these additional (community college) classes, trying to be proactive because I don't want to feel sorry for myself."

Children who specialize in one sport at a young age are also more likely to continue training in this single sport, even after the early symptoms of degenerative changes are apparent, because they have not been familiarized with other sports, Wiersma says.

Given the early age some of her children started sports, Marcy says she is mindful about making sure her children have an opportunity to develop other skills. Bryce played soccer and was a swimmer before he jumped into ballet; not all of Marcy's children have affiliated themselves with other sports.

"She started so young at this," says Marcy, referring to Noelle. "I've always tried to give her other options… We have that conversation, 'Are you still enjoying dance?' 'Are you happy there?' We really try to keep the channels of communication open there."

Still, Marcy says she has enjoyed watching her children grow into their sports.

In March, the family went to New York, and spent five days watching and practicing ballet. Tate competed in the Youth American Grand Prix, a national dance competition, and he also choreographed his own routine. Bryce received instruction from a visiting instructor from the Paris Opera Ballet, and also studied at the Alvin Ailey American Dance Theater.

"He's a lot more disciplined," Marcy says. "He's a lot more pleasant person on days that he dances, much more enjoyable person to be around. He's very confident around other people. He's very self-assured about who he is…As a parent to see the growth and development, when we get to see him in the different shows and be able to watch him progress, it's really exciting."

In August, the family will go back to New York to watch Noelle perform at the American Ballet Theatre.

The most serious of her three children appears to be Tate, who at 10, is accomplished, and has a tremendous drive to reach the top echelons of the ballet circuit. In between praising his brother, Bryce, on his skill, Tate also sees it necessary to chide him for talking to the girls in his ballet class—Tate rarely talks on topics outside of ballet in class.

"He doesn't like to goof around in class," says Bryce about Tate. "He is there to learn and that's it. No one will stand in his way in ballet. If they are saying you can't do it, he'll just say 'I'll show you.'"

Genetic disposition and past injury history are key indicators of whether or not a child will develop osteoarthritis—there is no way to know if Tate, or Marcy's other children, will suffer from the condition at some time later in their life.

Marcy praises her children for their dedication to the sport; she feels that such focus and ability to endure rigorous training and practice will translate into later success for her children. At the same time, she says she realizes too much of anything can be harmful.

"It's a matter of keeping it fun, reminding them that they are children and they need down time," Marcy says. "That they need to be educated. It can't be all about dance at this time because it's a long shot."

John Sakata, of Fullerton, is a freelance reporter.

## 5 DO'S TO HELP YOUR ATHLETE AVOID INJURIES

1. **Pick a sport that matches your child's genetic capability** Picking the right sport is crucial to the future success of your child and your child's body. The better the physical match of your child to the sport, the less chances of injuries and future physical ailments.
2. **Research the sport** It's important that parents and children understand the commitment to the sport. This will help in balancing time commitments as well as physical activities. Your child must also be willing and able to put in all the hard physical work.
3. **Keep your child focus on playing one sport** Playing competitively in multiple sports is counterproductive for your child's body and future as an athlete. By playing multiple competitive sports, it hinders motor control, causing over training and fatigue, leading to overuse injuries and accelerating degenerative changes in the body.
4. **Create a multidisciplinary health care team** It's important that you create a team of health professionals in case of an injury and to learn how to prevent injuries. This may include research doctors, therapists and trainers in your area. Make sure that the specialist you choose has actual hands on experience in treating numerous other patients that share your child's sport.
5. **Your child must be willing to do what is necessary to prevent injuries** Doing what it takes to keep the body healthy and ready to play is a hallmark of a professional athlete. Proper nutrition, keeping hydrated, stretching, massages, adjustments, yoga, ect., are all examples of extra commitments a child must be willing to make if he or she is to be competitive in a sport and have longevity as an athlete.—*Dr. Jack R. Giangiulio.*

*Dr. Jack R. Giangiulio, DC is a Newport Beach chiropractor who treats amateur and professional athletes, dancers and entertainers.*

*Bryce Lee, 14, rehabs with Giangiulio after suffering from a ballet injury last November.*